



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 2816 Craven Ditch

Submitted by
MEC/ERC

To
Missouri Department of Natural Resources
Water Protection Program

On
October 24, 2008

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A – Water Body Identification

I. Water Body Information (for water body being surveyed)

Water Body Name (from USGS 7.5' quad):	<i>Craven Ditch</i>
Missouri Water Body Identification (WBID) Number:	<i>28/6</i>
8-digit HUC:	<i>11010007</i>
County(ies), Listed Upstream to Downstream:	<i>Butler</i>
Upstream Legal Description (from Table H):	<i>16, 24 N, 6 E</i>
Downstream Legal Description (from Table H):	<i>Mouth</i>
Number of sites evaluated:	<i>7</i>
List all site numbers, <u>consecutively upstream to downstream</u> :	<i>Site 1, Site 2, Site 3, Site 4, Site 5, Site 6, Site 7</i>
Include a Site Location Map(s). The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).	

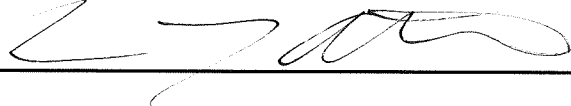
II. Facility Information (list all permitted discharges to this water body segment)

Facility Name(s) and Permit Number(s):
<i>Westwood Manor Apartments</i>
<i>MO - 0048844</i>

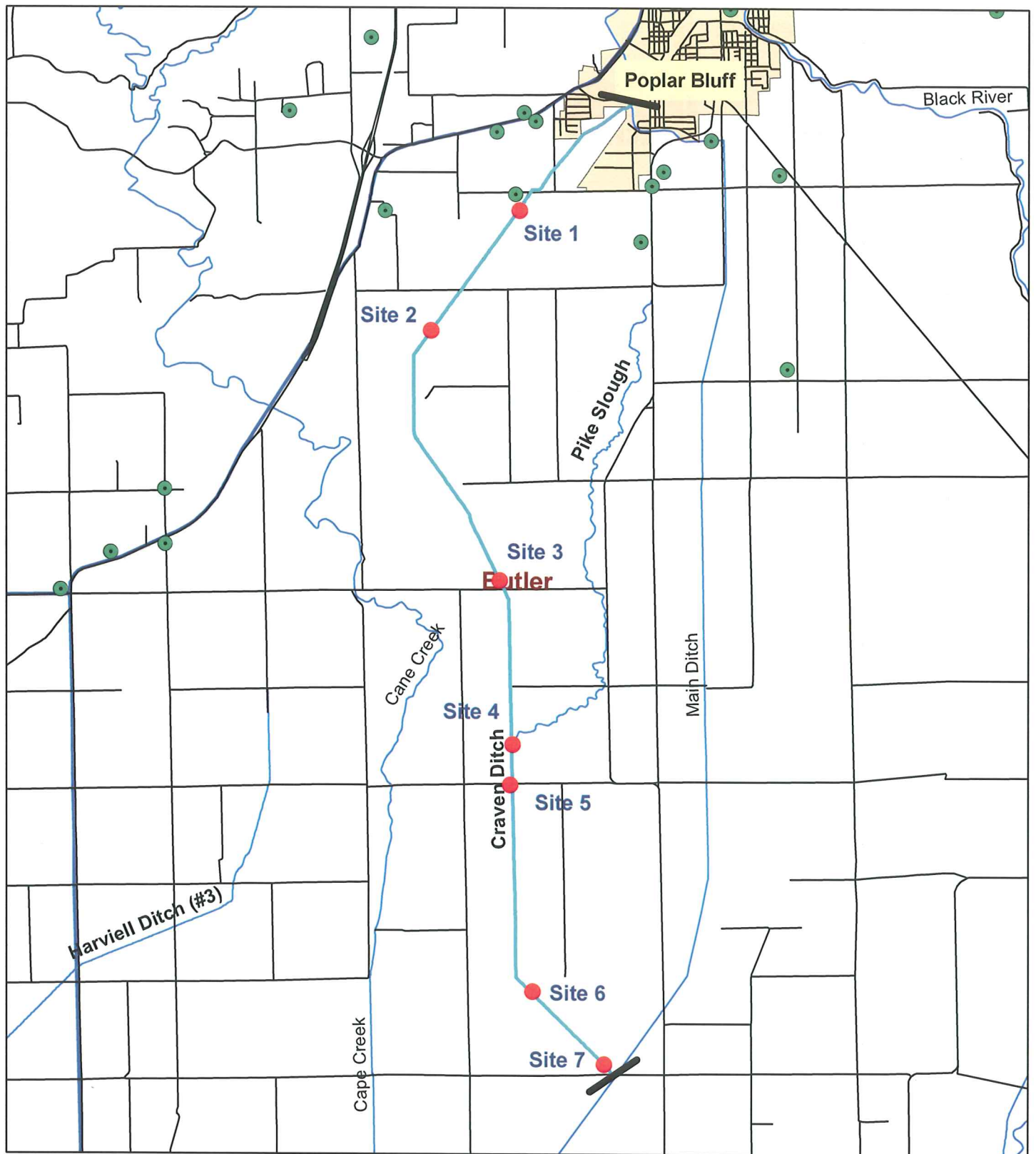
III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor:	<i>T. Altmether, D. Carani</i>	Telephone Number:	<i>573-443-4100</i>
Organization/Employer:	<i>MEC Water Resources, Inc.</i>		

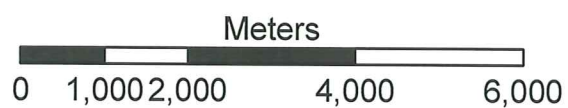
Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed:  Date: *10/8/08*

RUC 10-20-08



Craven Ditch
WBID 2816
Butler County



WBID # 2816Site # 1**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>9/26/05 13:10</u>	Location Description (e.g., road crossing): <u>2^{DS} CR 305 + 302</u>
Stream Name: <u>Craven Ditch</u>	
Current Weather Conditions: <u>warm 82°</u>	Facility Name(s): <u>Westwood Manor Apts.</u>
Weather Conditions for Past 10 days: <u>~2.31 in. precip. ~70°F avg.</u>	Permit Number(s): <u>MO-0048844</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>724142</u>	Northing (UTM Y): <u>406655</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>21</u> Meters		
Site 11	Easting (UTM X): <u>729037</u>	Northing (UTM Y): <u>406673</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>15</u> Meters		

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2816-1-077</u>	<u>Upstream</u>	<u>2816-1-078</u>	<u>Downstream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

N/A

Stream Name & WBID # Craven Ditch 2816
Site # 281

Date of Survey 8/24/08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <div style="text-align: center;">N/A</div>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <div style="text-align: center;">N/A</div>			

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>10</u> % Sand	<u>20</u> % Silt	<u>70</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>dense vegetation - see pics</u>

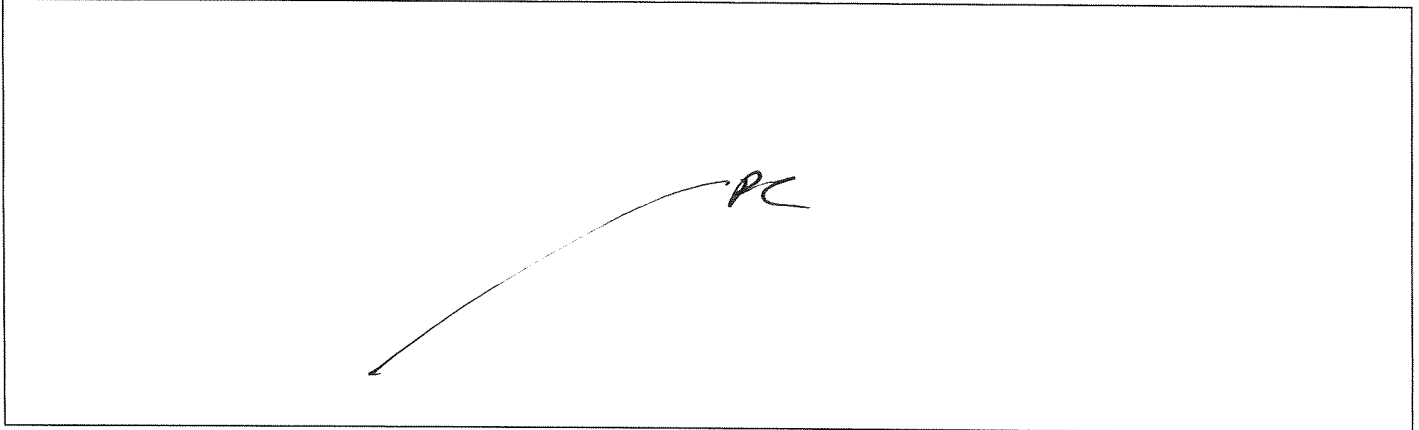
Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Crawon Ditch 2816Date of Survey 9/24/08Site # 1**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**Printed Names of Personnel Collecting Data: David CaraniSurveyor's Signature:  Date of Survey: 9/26/08Organization: MEC Water Resource Inc. Position: WRSALC 10-20-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Craven Ditch</u>		Waterbody ID: <u>2816</u>		Site #: <u>1</u>	
Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>729142</u>		UTM Y: <u>4066855</u>		+/- <u>21</u> (meters)	
11 UTM X: <u>729037</u>		UTM Y: <u>4066773</u>		+/- <u>15</u> (meters)	
Average Stream Width: <u>3.5</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>DC, TA</u>					

Dissolved Oxygen	
Date: <u>9/26/2008</u>	Time: <u>13:10</u>
Dissolved Oxygen: <u>4.66</u> (mg/L)	
Dissolved Oxygen: <u>54.5</u> (% sat)	
Specific Cond: <u>178</u> (µS/cm)	
Water Temperature: <u>24.0</u> (°C)	

Transect Cross-Section																						
01		02		03		04		05		06		07		08		09		10		11		
Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.50	0.19	0.30	0.10	0.30	0.09	0.72	0.20	0.71	0.09	0.28	0.26	0.21	0.08	0.08	0.05	0.12	0.11	0.35	0.20	0.05	0.18
2	1.00	0.25	0.60	0.10	0.60	0.13	1.44	0.35	1.42	0.01	0.56	0.33	0.42	0.04	0.16	0.09	0.24	0.15	0.70	0.25	0.10	0.21
3	1.50	0.25	0.90	0.16	0.90	0.18	2.16	0.40	2.13	0.20	0.84	0.36	0.63	0.14	0.24	0.13	0.36	0.15	1.05	0.26	0.15	0.24
4	2.00	0.27	1.20	0.19	1.20	0.18	2.88	0.44	2.84	0.26	1.12	0.37	0.84	0.13	0.32	0.23	0.48	0.17	1.40	0.26	0.20	0.25
5	2.50	0.29	1.50	0.20	1.50	0.17	3.60	0.45	3.55	0.34	1.40	0.39	1.05	0.30	0.40	0.26	0.60	0.21	1.75	0.25	0.25	0.25
6	3.00	0.28	1.80	0.18	1.80	0.15	4.32	0.46	4.26	0.39	1.68	0.39	1.26	0.34	0.48	0.27	0.72	0.21	2.10	0.25	0.30	0.22
7	3.50	0.26	2.10	0.30	2.10	0.28	5.04	0.50	4.97	0.41	1.96	0.27	1.47	0.36	0.56	0.27	0.84	0.22	2.45	0.28	0.35	0.20
8	4.00	0.25	2.40	0.33	2.40	0.19	5.76	0.48	5.68	0.44	2.24	0.33	1.68	0.35	0.64	0.17	0.96	0.22	2.80	0.21	0.40	0.10
9	4.50	0.23	2.70	0.19	2.70	0.16	6.48	0.40	6.39	0.40	2.52	0.32	1.89	0.35	0.72	0.16	1.08	0.21	3.15	0.26	0.45	0.08
	5.00	0.00	3.00	0.00	3.00	0.00	7.20	0.00	7.10	0.00	2.80	0.00	2.10	0.00	0.80	0.00	1.20	0.00	3.50	0.00	0.50	0.00
	Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: 9/26/2008

WBID # 2816Site # 2**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>9/26/08 12:45</u>	Location Description (e.g., road crossing): <u>DS Intersection of 305 & 314</u>
Stream Name: <u>Craven Ditch</u>	
Current Weather Conditions: <u>warm 82°</u>	Facility Name(s): <u>Westwood Manor Apts.</u>
Weather Conditions for Past 10 days: <u>~ 2.31 in. precip. ~ 70°F avg.</u>	Permit Number(s): <u>MO-0048844</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)				
Site 01	Easting (UTM X): <u>727648</u>	Northing (UTM Y): <u>4064831</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>9.4</u> Meters
Site 11	Easting (UTM X): <u>727764</u>	Northing (UTM Y): <u>4064726</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>6.0</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2816-2-074</u>	<u>Up Stream</u>	<u>2816-2-076</u>	<u>Down Stream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

N/A

Stream Name & WBID # Crown 2816
Site # 2

Date of Survey 9/24/08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 2 of 3)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: <div style="text-align: center;"><u>Ag land</u></div>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <div style="text-align: center;"><u>N/A</u></div>			

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>20</u> % Sand	<u>20</u> % Silt	<u>60</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>DS - none</u> <u>US - 90% emergent veg</u>
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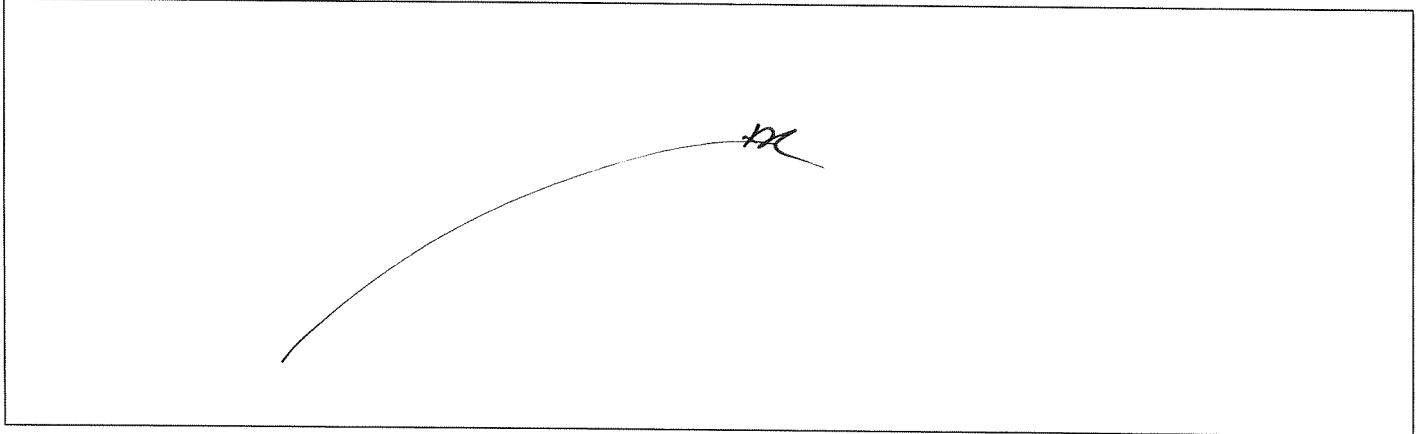
Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Craven Pond 2816Date of Survey 9/26/08Site # 2**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**Printed Names of Personnel Collecting Data: David CaramiSurveyor's Signature: [Signature] Date of Survey: 9/26/08Organization: MEL Water Resources Inc. Position: WQSRUC 10-20-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Craven Ditch</u>		Waterbody ID: <u>2816</u>		Site #: <u>2</u>	
Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>727648</u>		UTM Y: <u>4064831</u>		+/- <u>9.4</u> (meters)	
11 UTM X: <u>727564</u>		UTM Y: <u>4064726</u>		+/- <u>6.0</u> (meters)	
Average Stream Width: <u>4.5</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>DC, TA</u>					

Dissolved Oxygen	
Date: <u>9/26/2008</u>	Time: <u>12:45</u>
Dissolved Oxygen: <u>8.57</u> (mg/L)	
Dissolved Oxygen: <u>98.7</u> (% sat)	
Specific Cond: <u>274</u> (µS/cm)	
Water Temperature: <u>22.3</u> (°C)	

Transect Cross-Section																						
01		02		03		04		05		06		07		08		09		10		11		
Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.42	0.18	0.48	0.25	0.46	0.28	0.45	0.25	0.43	0.25	0.45	0.34	0.40	0.21	0.51	0.26	0.50	0.28	0.38	0.25	0.61	0.25
2	0.84	0.21	0.96	0.35	0.92	0.35	0.90	0.34	0.86	0.34	0.90	0.37	0.80	0.23	1.02	0.29	1.00	0.31	0.76	0.29	1.22	0.29
3	1.26	0.28	1.44	0.45	1.38	0.40	1.35	0.35	1.29	0.36	1.35	0.39	1.20	0.30	1.53	0.33	1.50	0.38	1.14	0.33	1.83	0.37
4	1.68	0.35	1.92	0.45	1.84	0.45	1.80	0.38	1.72	0.38	1.80	0.36	1.60	0.32	2.04	0.35	2.00	0.44	1.52	0.34	2.44	0.39
5	2.10	0.50	2.40	0.48	2.30	0.47	2.25	0.40	2.15	0.37	2.25	0.35	2.00	0.33	2.55	0.35	2.50	0.44	1.90	0.37	3.05	0.40
6	2.52	0.56	2.88	0.45	2.76	0.45	2.70	0.36	2.58	0.34	2.70	0.33	2.40	0.29	3.06	0.36	3.00	0.43	2.28	0.40	3.66	0.34
7	2.94	0.50	3.36	0.49	3.22	0.51	3.15	0.38	3.01	0.34	3.15	0.31	2.80	0.34	3.57	0.31	3.50	0.41	2.66	0.29	4.27	0.33
8	3.36	0.35	3.84	0.51	3.68	0.45	3.60	0.39	3.44	0.36	3.60	0.35	3.20	0.37	4.08	0.34	4.00	0.42	3.04	0.40	4.88	0.27
9	3.78	0.21	4.32	0.35	4.14	0.32	4.05	0.37	3.87	0.35	4.05	0.33	3.60	0.36	4.59	0.34	4.50	0.35	3.42	0.29	5.49	0.18
	4.20	0.00	4.80	0.00	4.60	0.00	4.50	0.00	4.30	0.00	4.50	0.00	4.00	0.00	5.10	0.00	5.00	0.00	3.80	0.00	6.10	0.00
	Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: 9/26/2008

WBID # 2816
 Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3) (must be completed for each site)

Date & Time: <u>9/26/08 12:00</u>	Location Description (e.g., road crossing): <u>2 158 Hwy</u>
Stream Name: <u>Craven Pkch</u>	
Current Weather Conditions: <u>clear 80°</u>	Facility Name(s): <u>Westwood Manor Apts.</u>
Weather Conditions for Past 10 days: <u>~2.31 in. precip. ~70°F avg.</u>	Permit Number(s): <u>MO-0048844</u>
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>728790</u>	Northing (UTM Y): <u>4060720</u>	Horizontal Accuracy: <u>8.0</u> Meters (EPE / FOM / PDOP) <u>5.7</u>
Site 11	Easting (UTM X): <u>728828</u>	Northing (UTM Y): <u>4060603</u>	Horizontal Accuracy: <u>5.9</u> Meters (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2816-3-072</u>	<u>UpStream</u>	<u>2816-3-073</u>	<u>DownStream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

N/A

Stream Name & WBID # Craven Pitch 2816Date of Survey 9/24/08Site # 3**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: <u>Ag land</u>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <u>N/A</u>			

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>20</u> % Sand	<u>20</u> 10 % Silt	<u>60</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>none</u> ^{PL} <u>Periphyton ~ 30% coverage</u> <u>~ 70% at US transect</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Craven Ditch 281b
Site # 3

Date of Survey 9/24/08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

DL

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: David Carani

Surveyor's Signature: *[Signature]* Date of Survey: 9/24/08

Organization: MEC Water Resources, Inc Position: WQS

QUC 10-20-08



Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Craven Ditch</u>		Waterbody ID: <u>2816</u>		Site #: <u>3</u>	
Estimated Channel Incision: <u>0.8</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>728790</u>		UTM Y: <u>4060720</u>		+/- <u>8.0</u> (meters)	
11 UTM X: <u>728828</u>		UTM Y: <u>4060603</u>		+/- <u>5.9</u> (meters)	
Average Stream Width: <u>4.0</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>DC, TA</u>					

Dissolved Oxygen	
Date: <u>9/26/2008</u>	Time: <u>12:00</u>
Dissolved Oxygen: <u>9.08</u> (mg/L)	
Dissolved Oxygen: <u>107.5</u> (% sat)	
Specific Cond: <u>222</u> (µS/cm)	
Water Temperature: <u>24.0</u> (°C)	

Station		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		0.40	0.11	0.39	0.09	0.42	0.09	0.28	0.16	0.32	0.10	0.38	0.11	0.42	0.04	0.43	0.14	0.31	0.12	0.25	0.21	0.82	0.13
2		0.80	0.15	0.78	0.15	0.84	0.15	0.56	0.16	0.64	0.14	0.76	0.16	0.84	0.16	0.86	0.23	0.62	0.15	0.50	0.21	1.64	0.12
3		1.20	0.17	1.17	0.16	1.26	0.17	0.84	0.19	0.96	0.16	1.14	0.17	1.26	0.05	1.29	0.28	0.93	0.16	0.75	0.21	2.46	0.12
4		1.60	0.17	1.56	0.17	1.68	0.21	1.12	0.22	1.28	0.20	1.52	0.21	1.68	0.20	1.72	0.31	1.24	0.16	1.00	0.21	3.28	0.20
5		2.00	0.20	1.95	0.20	2.10	0.26	1.40	0.25	1.60	0.22	1.90	0.26	2.10	0.21	2.15	0.34	1.55	0.17	1.25	0.21	4.10	0.25
6		2.40	0.19	2.34	0.21	2.52	0.19	1.68	0.29	1.92	0.23	2.28	0.26	2.52	0.21	2.58	0.31	1.86	0.18	1.50	0.20	4.92	0.32
7		2.80	0.18	2.73	0.18	2.94	0.15	1.96	0.30	2.24	0.25	2.66	0.25	2.94	0.21	3.01	0.27	2.17	0.18	1.75	0.20	5.74	0.32
8		3.20	0.18	3.12	0.25	3.36	0.14	2.24	0.28	2.56	0.26	3.04	0.20	3.36	0.18	3.44	0.22	2.48	0.18	2.00	0.21	6.56	0.28
9		3.60	0.20	3.51	0.17	3.78	0.10	2.52	0.26	2.88	0.17	3.42	0.14	3.78	0.14	3.87	0.17	2.79	0.18	2.25	0.15	7.38	0.19
Right Bank		4.00	0.00	3.90	0.00	4.20	0.00	2.80	0.00	3.20	0.00	3.80	0.00	4.20	0.00	4.30	0.00	3.10	0.00	2.50	0.00	8.20	0.00
Feature Type (riffle, run, or pool)		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: 9/26/2008

WBID # 2816Site # 4**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)
(must be completed for each site)

Date & Time: <u>9/26/06 10:30</u>	Location Description (e.g., road crossing): <u>US CR 338</u>
Stream Name: <u>Craven Ditch</u>	
Current Weather Conditions: <u>clear warm 75°</u>	Facility Name(s): <u>Westwood Manor Apts.</u>
Weather Conditions for Past 10 days: <u>~2.31 in. precip. ~70°F avg.</u>	Permit Number(s): <u>MO - 0048844</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>729014</u>	Northing (UTM Y): <u>40577955</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>5.0</u> Meters
Site 11	Easting (UTM X): <u>729013</u>	Northing (UTM Y): <u>4057793</u> <u>40577953</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>4.0</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2816-4-066</u>	<u>Upstream</u>	<u>2816-4-067</u>	<u>Downstream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A</u>				

Stream Name & WBID # 2814 Craigm PitchDate of Survey 9/24/08Site # 7**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: <i>Agriculture</i>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <i>N/A</i>			

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u>20</u> % Sand	<u>60</u> % Silt	<u>20</u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<i>none</i>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # 2816 Crown DitchDate of Survey 9/24/08Site # 4**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

N/A

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.Printed Names of Personnel Collecting Data: David Carani + Tim AltmeyerSurveyor's Signature: [Signature] Date of Survey: 9/24/08Organization: MEC Water Resources, Inc. Position: LRS

ANC 10-20-08



Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Craven Ditch</u>		Waterbody ID: <u>2816</u>		Site #: <u>4</u>	
Estimated Channel Incision: <u>1.2</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>729014</u>		UTM Y: <u>4057955</u>		+/- <u>5.0</u> (meters)	
11 UTM X: <u>729013</u>		UTM Y: <u>4057953</u>		+/- <u>4.0</u> (meters)	
Average Stream Width: <u>4.6</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>DC, TA</u>					

Dissolved Oxygen	
Date: <u>9/26/2008</u>	Time: <u>10:30</u>
Dissolved Oxygen: <u>9.18</u> (mg/L)	
Dissolved Oxygen: <u>101.3</u> (% sat)	
Specific Cond: <u>208</u> (µS/cm)	
Water Temperature: <u>20.3</u> (°C)	

Station		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	0.42	0.15	0.35	0.15	0.32	0.09	0.32	0.09	0.40	0.13	0.42	0.09	0.45	0.11	0.42	0.11	0.40	0.11	0.32	0.13	0.52	0.08
	2	0.84	0.17	0.70	0.15	0.64	0.17	0.64	0.16	0.80	0.17	0.84	0.18	0.90	0.14	0.84	0.13	0.80	0.13	0.64	0.13	1.04	0.10
	3	1.26	0.17	1.05	0.21	0.96	0.17	0.96	0.17	1.20	0.16	1.26	0.18	1.35	0.16	1.26	0.09	1.20	0.14	0.96	0.15	1.56	0.10
	4	1.68	0.15	1.40	0.20	1.28	0.17	1.28	0.16	1.60	0.16	1.68	0.19	1.80	0.18	1.68	0.16	1.60	0.13	1.28	0.13	2.08	0.11
	5	2.10	0.20	1.75	0.17	1.60	0.18	1.60	0.15	2.00	0.17	2.10	0.17	2.25	0.17	2.10	0.13	2.00	0.15	1.60	0.13	2.60	0.11
	6	2.52	0.20	2.10	0.19	1.92	0.18	1.92	0.14	2.40	0.17	2.52	0.16	2.70	0.17	2.52	0.13	2.40	0.13	1.92	0.13	3.12	0.11
	7	2.94	0.15	2.45	0.17	2.24	0.14	2.24	0.16	2.80	0.18	2.94	0.15	3.15	0.15	2.94	0.12	2.80	0.12	2.24	0.12	3.64	0.09
	8	3.36	0.15	2.80	0.10	2.56	0.14	2.56	0.15	3.20	0.15	3.36	0.15	3.60	0.15	3.36	0.13	3.20	0.14	2.56	0.12	4.16	0.10
Right Bank	9	3.78	0.18	3.15	0.08	2.88	0.15	2.88	0.13	3.60	0.14	3.78	0.15	4.05	0.15	3.78	0.11	3.60	0.11	2.88	0.14	4.68	0.09
		4.20	0.00	3.50	0.00	3.20	0.00	3.20	0.00	4.00	0.00	4.20	0.00	4.50	0.00	4.20	0.00	4.00	0.00	3.20	0.00	5.20	0.00
Feature Type (riffle, run, or pool)		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: 9/26/2008

WBID # 2816Site # 5**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>9/24/08 10:00</u>	Location Description (e.g., road crossing): <u>2338 CR</u>
Stream Name: <u>Crawa Ditch</u>	
Current Weather Conditions: <u>clear cool 75°</u>	Facility Name(s): <u>Westwood Manor Apts.</u>
Weather Conditions for Past 10 days: <u>dry ~2.31 in. precip. 70°F avg.</u>	Permit Number(s): <u>MO-0098899</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>729026</u>	Northing (UTM Y): <u>4057301</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>5.0</u> Meters		
Site 11	Easting (UTM X): <u>729021</u>	Northing (UTM Y): <u>4057120</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>70</u> Meters		

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2816-5-064</u>	<u>UpStream</u>	<u>2816-5-065</u>	<u>DownStream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A</u>				

Stream Name & WBID # Craven Ditch 2816Date of Survey 9/26/08Site # 5**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: <u>Agriculture!</u>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <u>NA</u>			

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u>20</u> % Sand	<u>60</u> % Silt	<u>20</u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>none</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Craven Ditch 2816
Site # 5

Date of Survey 9/26/08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 3 of 3)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

MA

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: David Carami / Tim Altnether

Surveyor's Signature: [Signature] Date of Survey: 9/26/08

Organization: MEC Water Resources, Inc. Position: WQS

DLWC 10-20-08



Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Craven Ditch</u>		Waterbody ID: <u>2816</u>		Site #: <u>5</u>	
Estimated Channel Incision: <u>0.75</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>729026</u>		UTM Y: <u>4057301</u>		+/- <u>5.0</u> (meters)	
11 UTM X: <u>729021</u>		UTM Y: <u>4057120</u>		+/- <u>7.0</u> (meters)	
Average Stream Width: <u>5.0</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>DC, TA</u>					

Dissolved Oxygen	
Date: <u>9/26/2008</u>	Time: <u>10:00</u>
Dissolved Oxygen: <u>7.11</u> (mg/L)	
Dissolved Oxygen: <u>76.2</u> (% sat)	
Specific Cond: <u>208</u> (µS/cm)	
Water Temperature: <u>18.3</u> (°C)	

Station		Transect Cross-Section																						
		01		02		03		04		05		06		07		08		09		10		11		
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.39	0.10	0.35	0.11	0.48	0.11	0.42	0.10	0.42	0.07	0.34	0.11	0.38	0.12	0.36	0.09	0.35	0.10	0.62	0.07	0.51	0.16	
	2	0.78	0.11	0.70	0.08	0.96	0.14	0.84	0.09	0.84	0.13	0.68	0.11	0.76	0.12	0.72	0.12	0.70	0.14	1.24	0.13	1.02	0.13	
	3	1.17	0.19	1.05	0.05	1.44	0.10	1.26	0.10	1.26	0.17	1.02	0.12	1.14	0.10	1.08	0.11	1.05	0.13	1.86	0.09	1.53	0.12	
	4	1.56	0.16	1.40	0.00	1.92	0.07	1.68	0.14	1.68	0.17	1.36	0.13	1.52	0.11	1.44	0.13	1.40	0.13	2.48	0.02	2.04	0.11	
	5	1.95	0.09	1.75	0.06	2.40	0.06	2.10	0.15	2.10	0.16	1.70	0.14	1.90	0.10	1.80	0.15	1.75	0.13	3.10	0.00	2.55	0.13	
	6	2.34	0.11	2.10	0.09	2.88	0.13	2.52	0.14	2.52	0.14	2.04	0.13	2.28	0.08	2.16	0.14	2.10	0.09	3.72	0.00	3.06	0.13	
	7	2.73	0.12	2.45	0.08	3.36	0.16	2.94	0.18	2.94	0.10	2.38	0.11	2.66	0.08	2.52	0.15	2.45	0.09	4.34	0.00	3.57	0.10	
	8	3.12	0.15	2.80	0.09	3.84	0.19	3.36	0.19	3.36	0.11	2.72	0.11	3.04	0.09	2.88	0.07	2.80	0.12	4.96	0.00	4.08	0.10	
9	3.51	0.11	3.15	0.10	4.32	0.14	3.78	0.16	3.78	0.10	3.06	0.11	3.42	0.09	3.24	0.06	3.15	0.07	5.58	0.03	4.59	0.14		
Right Bank		3.90	0.00	3.50	0.00	4.80	0.00	4.20	0.00	4.20	0.00	3.40	0.00	3.80	0.00	3.60	0.00	3.50	0.00	6.20	0.00	5.10	0.00	rwc
Feature Type (riffle, run, or pool)		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: 9/26/2008

WBID # 2816Site # 6**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>9/26/08 11:45^{AM} 30</u>	Location Description (e.g., road crossing):
Stream Name: <u>Cran Ditch</u>	<u>US CR 350</u>
Current Weather Conditions: <u>clear 78°</u>	Facility Name(s): <u>Westwood Manor Apts.</u>
Weather Conditions for Past 10 days: <u>~ 2.31 in. precip. ~ 70°F avg.</u>	Permit Number(s): <u>MO-0048844</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"):	
No drought <input checked="" type="checkbox"/> Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:**LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)**

R Site 01	Easting (UTM X): <u>729475³⁶¹</u>	Northing (UTM Y): <u>4053735⁰⁵⁶</u>	Horizontal Accuracy: <u>4.0</u> Meters (EPE / FOM / PDOP) <u>3</u>
Site 11	Easting (UTM X): <u>729365⁴⁷⁶</u>	Northing (UTM Y): <u>4053735</u>	Horizontal Accuracy: <u>3.0</u> Meters (EPE / FOM / PDOP) <u>4</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2816-6-070</u>	<u>Upstream</u>	<u>2816-6-071</u>	<u>Downstream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				
<u>N/A</u>				

Stream Name & WBID # Crovan Ditch 2816Date of Survey 9/26/08Site # 46**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: <u>Agriculture land</u>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <u>N/A</u>			

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>20</u> % Sand	<u>20</u> % Silt	<u>60</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>None</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Croam Ditch 2814Date of Survey 9/26/09Site # 6**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**Printed Names of Personnel Collecting Data: David Caran!Surveyor's Signature: [Signature] Date of Survey: 9/26/09Organization: MEC Water Resources, Inc. Position: WWSRWC 10-20-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Craven Ditch</u>		Waterbody ID: <u>2816</u>		Site #: <u>6</u>	
Estimated Channel Incision: <u>0.8</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>729361</u>		UTM Y: <u>4053856</u>		+/- <u>4.0</u> (meters)	
11 UTM X: <u>729476</u>		UTM Y: <u>4053735</u>		+/- <u>3.0</u> (meters)	
Average Stream Width: <u>5.5</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>DC, TA</u>					

Dissolved Oxygen	
Date: <u>9/26/2008</u>	Time: <u>11:30</u>
Dissolved Oxygen: <u>9.22</u> (mg/L)	
Dissolved Oxygen: <u>111.7</u> (% sat)	
Specific Cond: <u>214</u> (µS/cm)	
Water Temperature: <u>25.0</u> (°C)	

Station		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		0.60	0.08	0.51	0.09	0.62	0.09	0.57	0.05	0.58	0.07	0.62	0.08	0.60	0.13	0.52	0.08	0.64	0.10	0.51	0.09	0.54	0.10
2		1.20	0.13	1.02	0.08	1.24	0.15	1.14	0.05	1.16	0.06	1.24	0.08	1.20	0.12	1.04	0.11	1.28	0.11	1.02	0.07	1.08	0.10
3		1.80	0.14	1.53	0.09	1.86	0.06	1.71	0.07	1.74	0.06	1.86	0.05	1.80	0.11	1.56	0.09	1.92	0.12	1.53	0.06	1.62	0.10
4		2.40	0.13	2.04	0.09	2.48	0.05	2.28	0.08	2.32	0.07	2.48	0.08	2.40	0.11	2.08	0.06	2.56	0.10	2.04	0.05	2.16	0.11
5		3.00	0.14	2.55	0.10	3.10	0.07	2.85	0.07	2.90	0.07	3.10	0.07	3.00	0.11	2.60	0.01	3.20	0.10	2.55	0.05	2.70	0.10
6		3.60	0.15	3.06	0.09	3.72	0.09	3.42	0.06	3.48	0.08	3.72	0.06	3.60	0.11	3.12	0.09	3.84	0.11	3.06	0.04	3.24	0.09
7		4.20	0.11	3.57	0.10	4.34	0.10	3.99	0.05	4.06	0.08	4.34	0.06	4.20	0.11	3.64	0.10	4.48	0.10	3.57	0.06	3.78	0.08
8		4.80	0.12	4.08	0.12	4.96	0.18	4.56	0.00	4.64	0.06	4.96	0.06	4.80	0.10	4.16	0.10	5.12	0.10	4.08	0.09	4.32	0.11
9		5.40	0.09	4.59	0.13	5.58	0.10	5.13	0.06	5.22	0.06	5.58	0.07	5.40	0.10	4.68	0.10	5.76	0.11	4.59	0.09	4.86	0.07
Right Bank		6.00	0.00	5.10	0.00	6.20	0.00	5.70	0.00	5.80	0.00	6.20	0.00	6.00	0.00	5.20	0.00	6.40	0.00	5.10	0.00	5.40	0.00
Feature Type (riffle, run, or pool)		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: 9/26/2008

WBID # 2816
 Site # 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3) (must be completed for each site)

Date & Time: <u>9/26/08 10:45</u>	Location Description (e.g., road crossing): <div style="text-align: center; font-size: 1.2em;">2 CR 350</div>
Stream Name: <u>Croan Ditch</u>	
Current Weather Conditions: <u>clear 77°</u>	Facility Name(s): <u>Westwood Manor Apts.</u>
Weather Conditions for Past 10 days: <u>~2.31 in. precip. ~70°F avg.</u>	Permit Number(s): <u>MO-0048844</u>
Official Drought Conditions at time of this survey (search DNR home page for “drought”): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>730602</u>	Northing (UTM Y): <u>4052647</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>12.8</u> Meters
Site 11	Easting (UTM X): <u>730716</u>	Northing (UTM Y): <u>4052498</u> ⁵⁰⁰	Horizontal Accuracy: (EPE / FOM / PDOP) <u>4.0</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2816-7-068</u>	<u>UpStream</u>	<u>2816-7-069</u>	<u>DownStream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.) <div style="text-align: center; font-size: 2em;">N/A</div>				

Stream Name & WBID # 2816 Crown PinesDate of Survey 9/24/08Site # 2816 7**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other:
Comments: <u>agriculture</u>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <u>N/A</u>			

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>20</u> % Sand	<u>60</u> % Silt	<u>20</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>none</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # 2816 Crown DitchDate of Survey 9/26/08Site # 7**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
				DC	

Comments: (Please record any additional comments here.)

NA

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: David Carani + Tim AltnerSurveyor's Signature: [Signature] Date of Survey: 9/26/08Organization: MFL Water Resources, Inc. Position: WQS

RUC 10-20-08

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Craven Ditch</u>		Waterbody ID: <u>2816</u>		Site #: <u>7</u>	
Estimated Channel Incision: <u>0.6</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>730602</u>		UTM Y: <u>4052647</u>		+/- <u>12.8</u> (meters)	
11 UTM X: <u>730716</u>		UTM Y: <u>4052500</u>		+/- <u>4.0</u> (meters)	
Average Stream Width: <u>4.5</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>DC, TA</u>					

Dissolved Oxygen	
Date: <u>9/26/2008</u>	Time: <u>10:45</u>
Dissolved Oxygen: <u>7.25</u> (mg/L)	
Dissolved Oxygen: <u>83.2</u> (% sat)	
Specific Cond: <u>221</u> (µS/cm)	
Water Temperature: <u>22.1</u> (°C)	

Transect Cross-Section																						
01		02		03		04		05		06		07		08		09		10		11		
Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.35	0.15	0.43	0.15	0.52	0.10	0.50	0.23	0.42	0.15	0.62	0.16	0.61	0.15	0.65	0.10	0.31	0.25	0.62	0.12	0.58	0.19
2	0.70	0.31	0.86	0.22	1.04	0.20	1.00	0.15	0.84	0.11	1.24	0.15	1.22	0.20	1.30	0.21	0.62	0.31	1.24	0.17	1.16	0.27
3	1.05	0.29	1.29	0.23	1.56	0.20	1.50	0.16	1.26	0.14	1.86	0.13	1.83	0.25	1.95	0.23	0.93	0.34	1.86	0.18	1.74	0.30
4	1.40	0.25	1.72	0.20	2.08	0.20	2.00	0.17	1.68	0.16	2.48	0.18	2.44	0.24	2.60	0.21	1.24	0.31	2.48	0.21	2.32	0.20
5	1.75	0.21	2.15	0.20	2.60	0.20	2.50	0.16	2.10	0.17	3.10	0.19	3.05	0.23	3.25	0.21	1.55	0.23	3.10	0.20	2.90	0.11
6	2.10	0.15	2.58	0.17	3.12	0.15	3.00	0.20	2.52	0.19	3.72	0.19	3.66	0.21	3.90	0.19	1.86	0.22	3.72	0.19	3.48	0.08
7	2.45	0.15	3.01	0.15	3.64	0.14	3.50	0.16	2.94	0.21	4.34	0.22	4.27	0.22	4.55	0.15	2.17	0.21	4.34	0.17	4.06	0.05
8	2.80	0.29	3.44	0.24	4.16	0.17	4.00	0.15	3.36	0.15	4.96	0.20	4.88	0.19	5.20	0.14	2.48	0.11	4.96	0.30	4.64	0.18
9	3.15	0.15	3.87	0.13	4.68	0.13	4.50	0.21	3.78	0.11	5.58	0.13	5.49	0.16	5.85	0.15	2.79	0.05	5.58	0.26	5.22	0.30
	3.50	0.00	4.30	0.00	5.20	0.00	5.00	0.00	4.20	0.00	6.20	0.00	6.10	0.00	6.50	0.00	3.10	0.00	6.20	0.00	5.80	0.00
	Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: _____ Date: 9/26/2008

